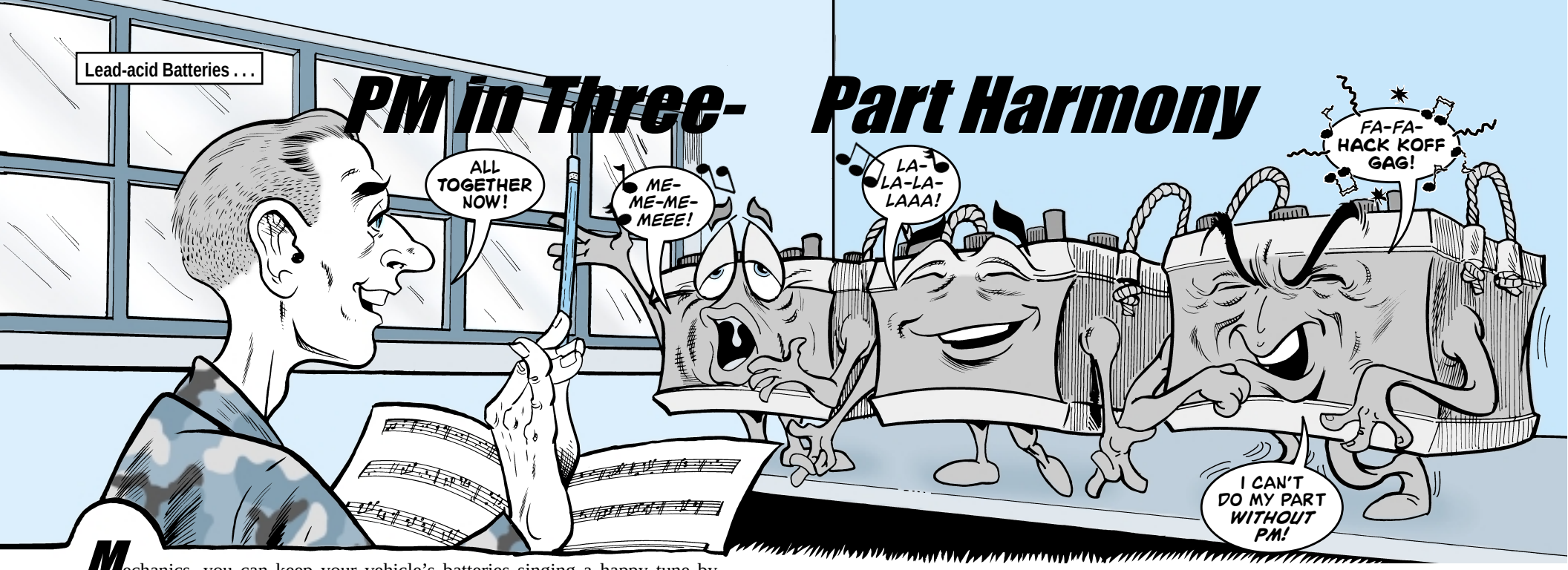
PM in Three-Part Harmony

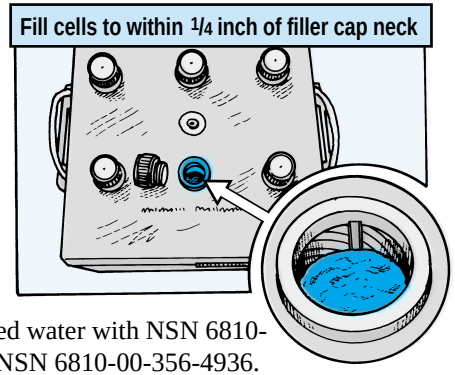


Mechanics, you can keep your vehicle's batteries singing a happy tune by following this score for three-part harmony:

1. Make sure battery plates are covered with electrolyte by adding distilled water when needed.

Without electrolyte—a mix of sulfuric acid and distilled water—there is no chemical reaction with the cell plates. Without the reaction, there is no electricity, and the battery discharges and dies.

More is not better when it comes to adding water, though. Too much water—like filling cells to the top—is just as bad as too little. When the cell is too full, electrolyte is flushed out during charging. Then, the battery can't recharge itself, so it dies. Fill cells with distilled water to within 1/4 inch of the filler cap necks.



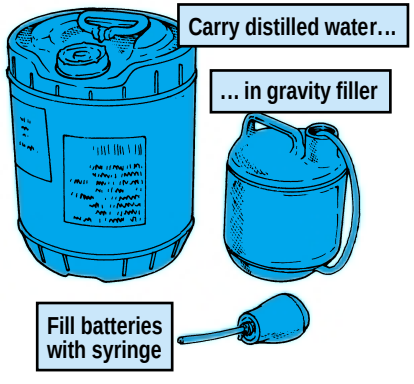
You can get six 1-gal bottles of distilled water with NSN 6810-00-682-6867. Get one 5-gal bottle with NSN 6810-00-356-4936.

Don't use non-distilled water unless you must. Impurities in non-distilled water can disrupt the chemical reaction that provides electricity.

But, in a pinch, rainwater, air conditioner condensation or even tap water can be used. Filter it through a clean cloth before using it, though.

Fill the battery using battery filler syringe, NSN 6140-00-808-7325. Carry a supply of water in the gravity battery filler, NSN 6140-00-635-3824. Both items are in the Common shop sets.

Even with the syringe you can overfill, so be careful.

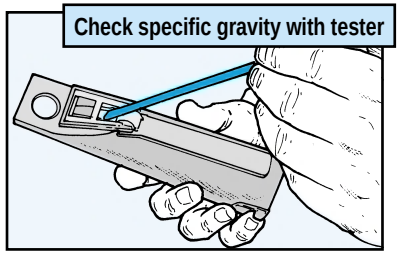


Keep in mind that during hot weather this water and electrolyte solution expands. If batteries were full at cooler temps, they'll be overfull when it's hot. You can remove water with the syringe, too.

Run the engine for 20–30 minutes after adding water in freezing temperatures. The charging system will then mix the water and electrolyte. A fully charged battery won't freeze even at temps as low as –90°F.

If you don't mix the two, the water just sits on top and will start freezing at 32°F.

You can tell how much charge a battery has by measuring the electrolyte's specific gravity with the antifreeze and battery tester, NSN 6630-00-105-1418, that is also in the Common shop sets. The right charge is shown by a specific gravity reading of 1.280.



Put the battery tester to work when:

- You're pulling the equipment's semiannual service.
- You suspect electrolyte was flooded out by overfilling.
- You're troubleshooting the charging system.
- Cold weather is just around the corner.
- You're putting the battery into service for the first time.

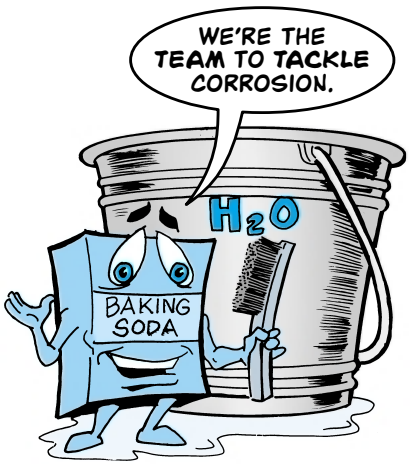
Instructions for battery testing are printed on Pages 3-5 through 3-11 of TM 9-6140-200-14 (Sep 98).

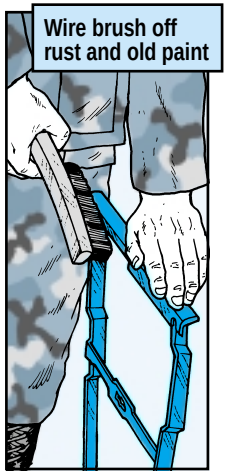
2. Clean dirt and corrosion from the battery and battery box.

Corrosion eats up metal parts on and around batteries. Dirt and corrosion also hold moisture. This moisture can close the circuit between the positive and negative terminals and discharge the battery.

Wipe off light dirt and corrosion with a cloth. To fight heavy corrosion, remove the battery and any metal parts that can be removed. Scrub the battery with a baking soda and water mix. Mix 1/2 pound of soda in a gallon of water. A pound of baking soda is NSN 6810-00-264-6618. Get 100 pounds with NSN 6810-00-290-5574.

Soak metal parts in the mix, then use a wire brush to scrape off rust and and old paint. Use a scraper, if necessary, but only on the metal parts you've removed.



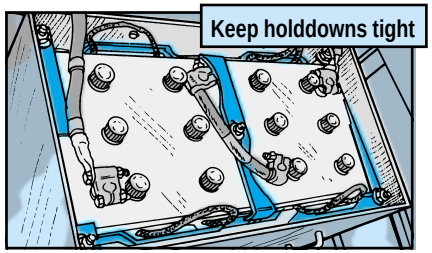


After cleaning, rinse the battery with lots of clean water and dry it well. Protect bare metal with bituminous coating compound, NSN 8030-00-290-5141.

Shine up battery posts and clamps with the battery terminal cleaner, NSN 5120-00-926-5175, from the Common shop sets.

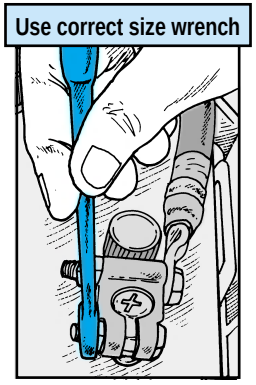
3. Protect the battery from damage.

Snug battery holddowns tight enough to keep the battery from banging around, but not enough to crack the casing.



Protect terminals and cable connectors, too. Always use the right size wrenches—not an adjustable wrench—when loosening or tightening nuts.

Never overtighten the connectors. That can stretch the clamp and loosen the connector's grip.



Loosen the bolt to remove the connector. Never pry it off with a screwdriver. Chances are you'll break the battery post or punch a hole in the battery.

Assure tightness of battery connectors visually or with an easy touch, not with a pair of pliers or other tools.

Protect battery posts by supporting long cables with tiedown straps, NSN 5975-00-074-2072.

When you change a cable, remove the bolt and cable only. Leave the terminal connected to the post. That keeps your connection secure.